

# Risk Research at the National Science Foundation

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# Roadmap

- NSF is not a mission agency
- NSF's popularity with scholars
- Disciplinary programs
- Interdisciplinary competitions
- Future
- Opportunities to influence NSF research

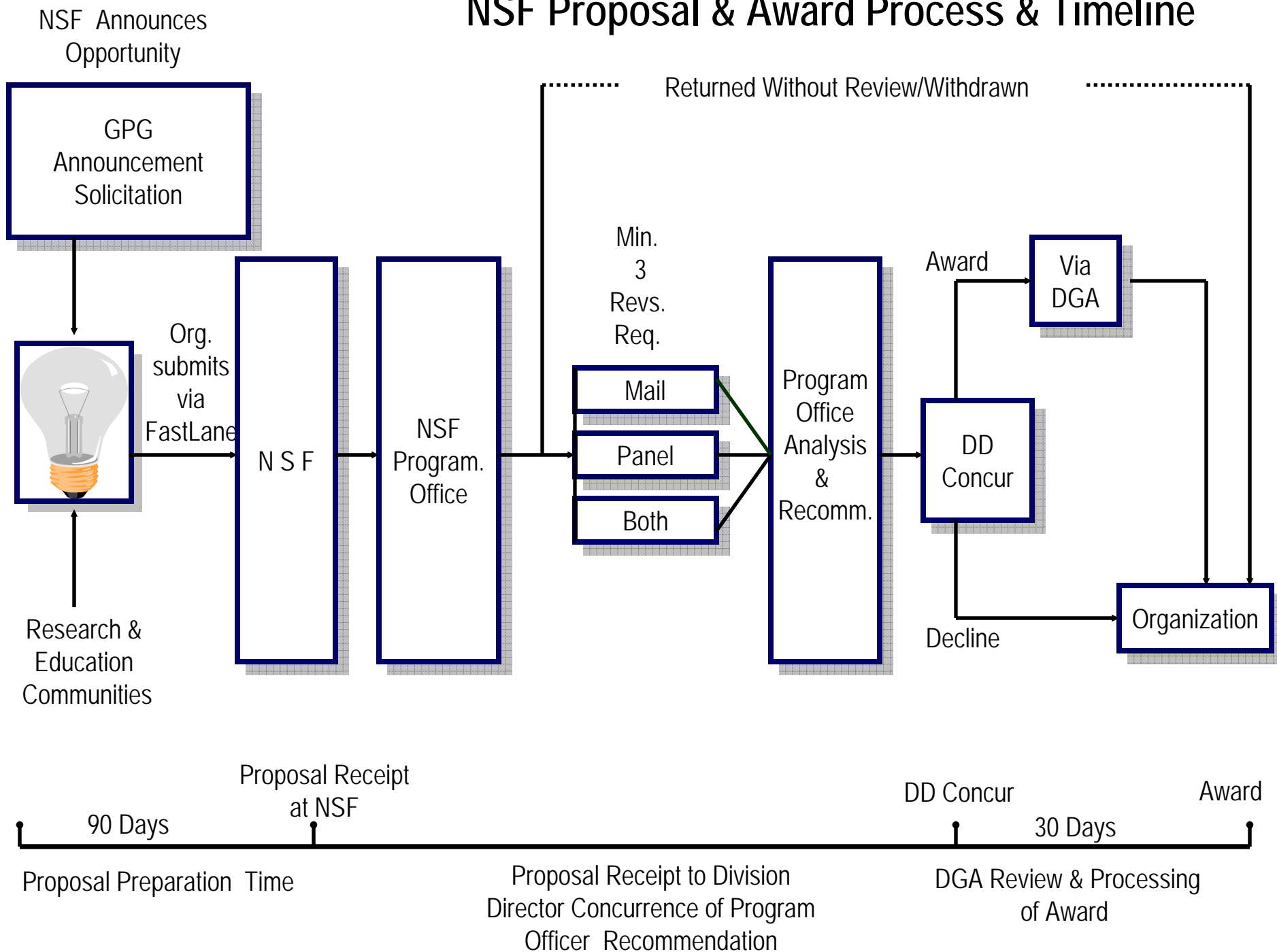
# NSF: Not a Mission Agency

- Independent Executive Agency
- Mission is to support basic research
- Two funding criteria
- Mostly funds universities
  - Unsolicited disciplinary competitions
  - Priority areas and special solicitations
- Peer review process with program officer funding decisions
- “Bottom-Up” mentality

# Why Scholars Like NSF

- Supports curiosity-driven basic research
- Pays 2 months salary
- Supports all reasonable research expenses
- Uses the grant mechanism for projects
- Pays full overhead
- Requires minimal reporting

# NSF Proposal & Award Process & Timeline



# Risk Research at NSF

- Programs:
  - Decision, Risk and Management Sciences
  - Coupled Natural and Human Systems
  - Economics
  - Operations Research
- Special Competitions:
  - Human and Social Dynamics
  - Decision Making Under Uncertainty for Climate Change

# Decision, Risk and Management Sciences Program

- August 18, January 18 target dates
- Current award examples:
  - An experimental examination of the economics and psychology of stigma
  - Improving the valuation of risk reduction
- Funded Vernon Smith, Tom Schelling, and Dan Kahneman
- Supports JDM and SRA scholars

# DRMS MOU Example

- Title: Trans-Atlantic Uncertainty Colloquium
- PI's Bruce Beck, Ken Oye, Ken Renkow
- Topic: meshing new methodologies for addressing uncertainty with regulatory constraints



# Human and Social Dynamics

- Priority Area
  - Agents of Change
  - Dynamics of Human Behavior
  - Decisions, Risks and Uncertainty
- Requires 3 PI's from 2 or more disciplines
- \$750,000 or \$1,250,000 for 3 years
- FY08 is last year, but....

# HSD Example

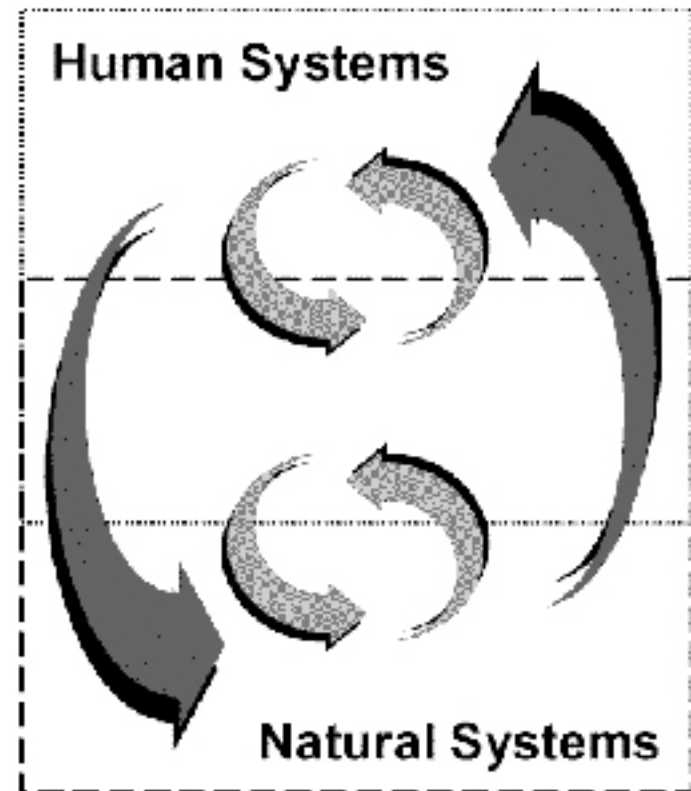
- Title: Transferring to regulatory economics the risk-analysis approaches to uncertainty, inter-individual variability, and other phenomena
- Question: Can estimation and communication methods used to quantify risks be profitably adapted for use on the “cost side” of cost-benefit analysis?

# Research Team

- PI: Adam Finkel (environmental sciences)
- Eldar Shafir (cognitive psychology)
- Scott Ferson (ecology and evolution)
- Winston Harington (planning)
- Sandra Hoffman (agricultural and resource economics)

# Dynamics of Coupled Natural and Human Systems (CNH)

**Dynamics** of  
**Coupled**  
**Natural and**  
**Human**  
**Systems**



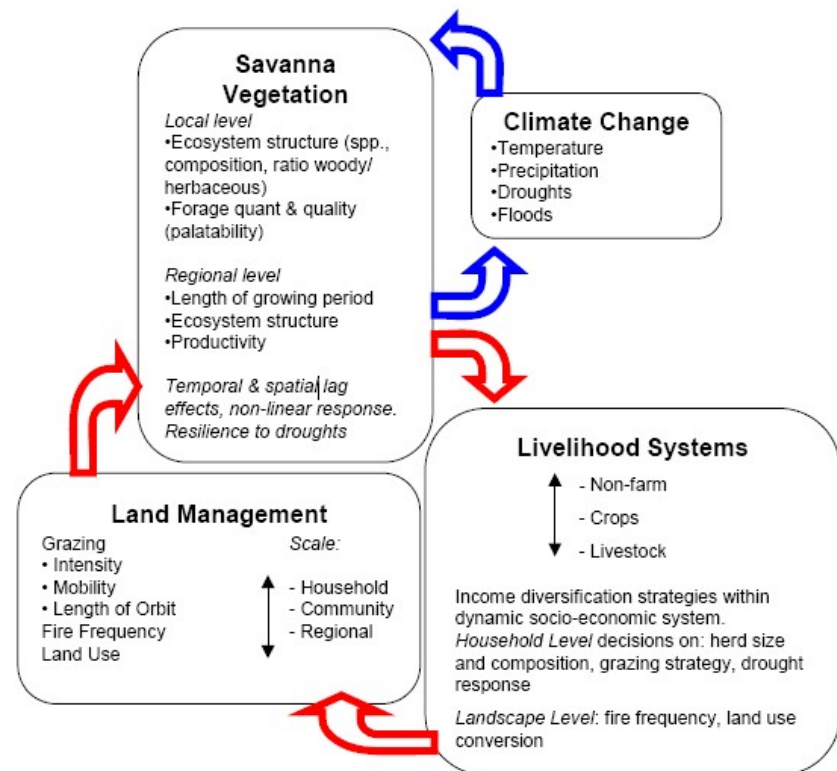
# Coupled Human / Natural Systems

- First multi-directorate permanent program at NSF (BIO, GEO, SBE)
- Ecological influences on humans and human influences on the ecology
- Ecologists and social scientists
- Awards of \$1,500,000 over 3 years

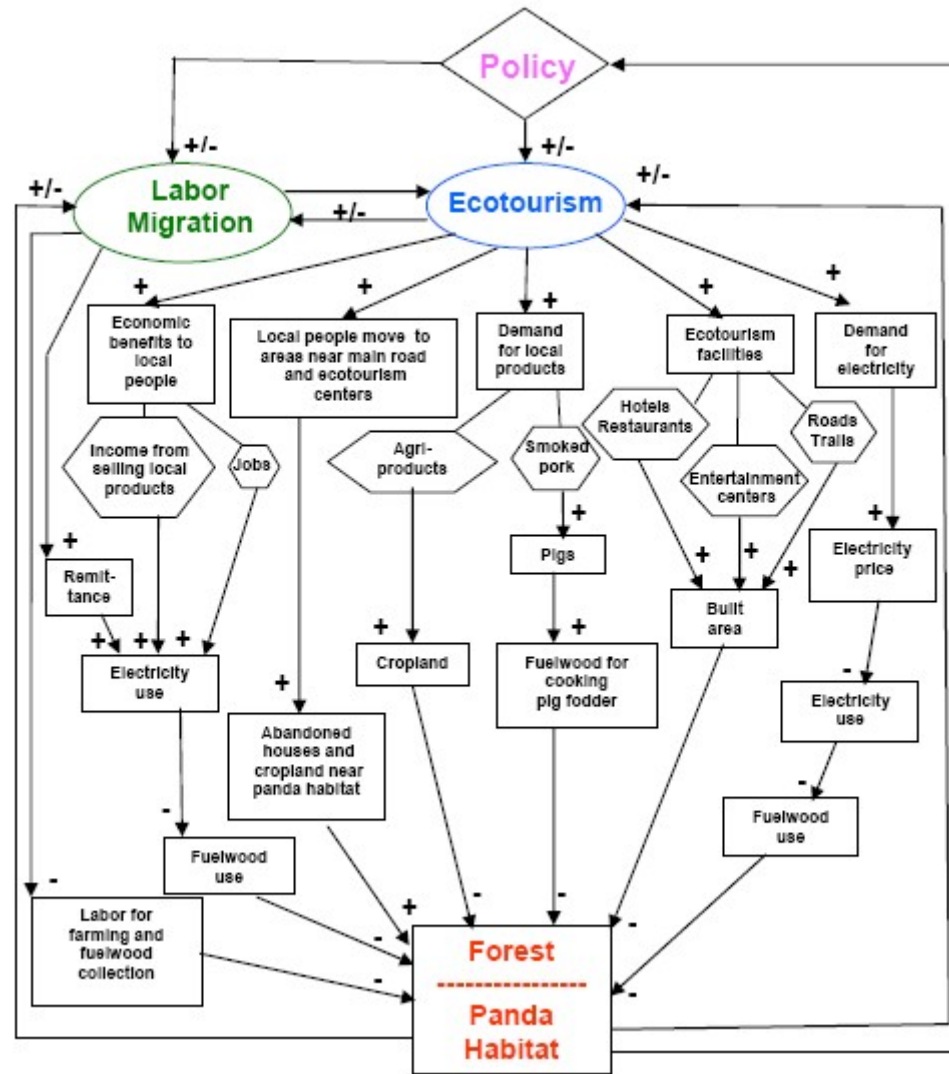
# The 12 CNH Awards Resulting from the FY2007 Competition Continue the Tradition

- Two awards effectively are renewals of previous CNH awards:

- David Campbell, Michigan State U, "Dynamic Interactions Among People, Livestock, and Savanna Ecosystems Under Climate Change "

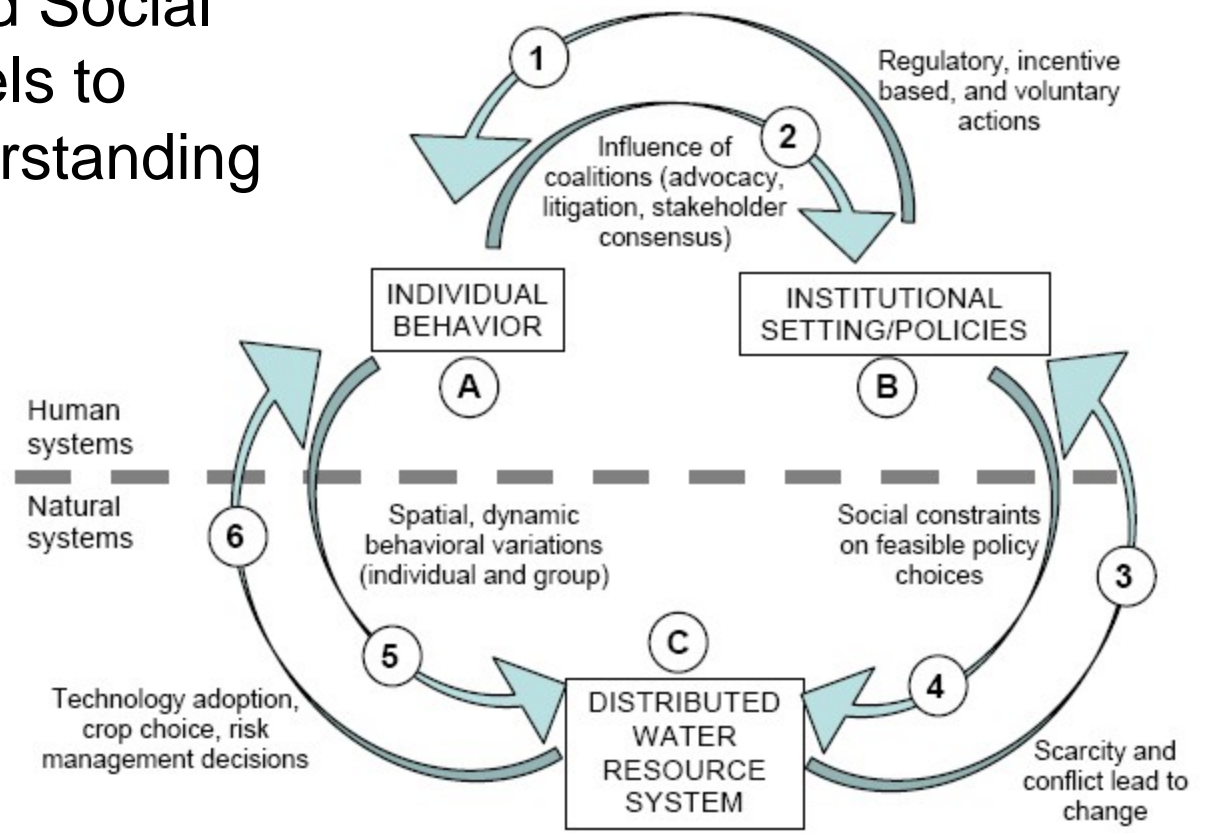


- Jianguo Liu, Michigan State U, "Effects of Cross-Boundary Processes on Human-Nature Dynamics in Wolong Nature Reserve for Giant Pandas"



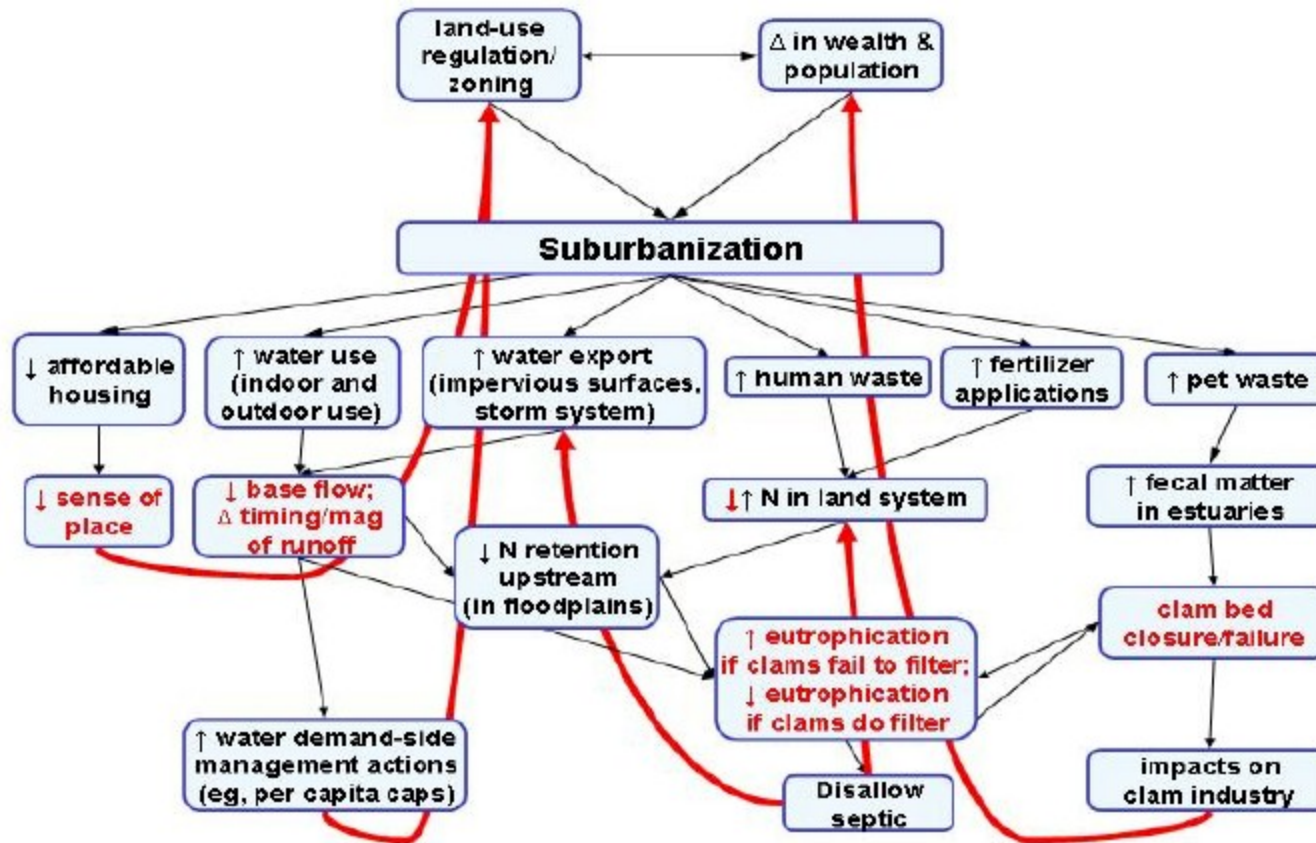
- Other awards examined human-natural system interactions in urban environments:

- Nicolas Brozovic, U of Illinois-Urbana/Champaign, "Coupling Hydrologic, Economic, and Social Network Models to Improve Understanding of Surface Water-Groundwater Interactions for Protection of Instream Flows"

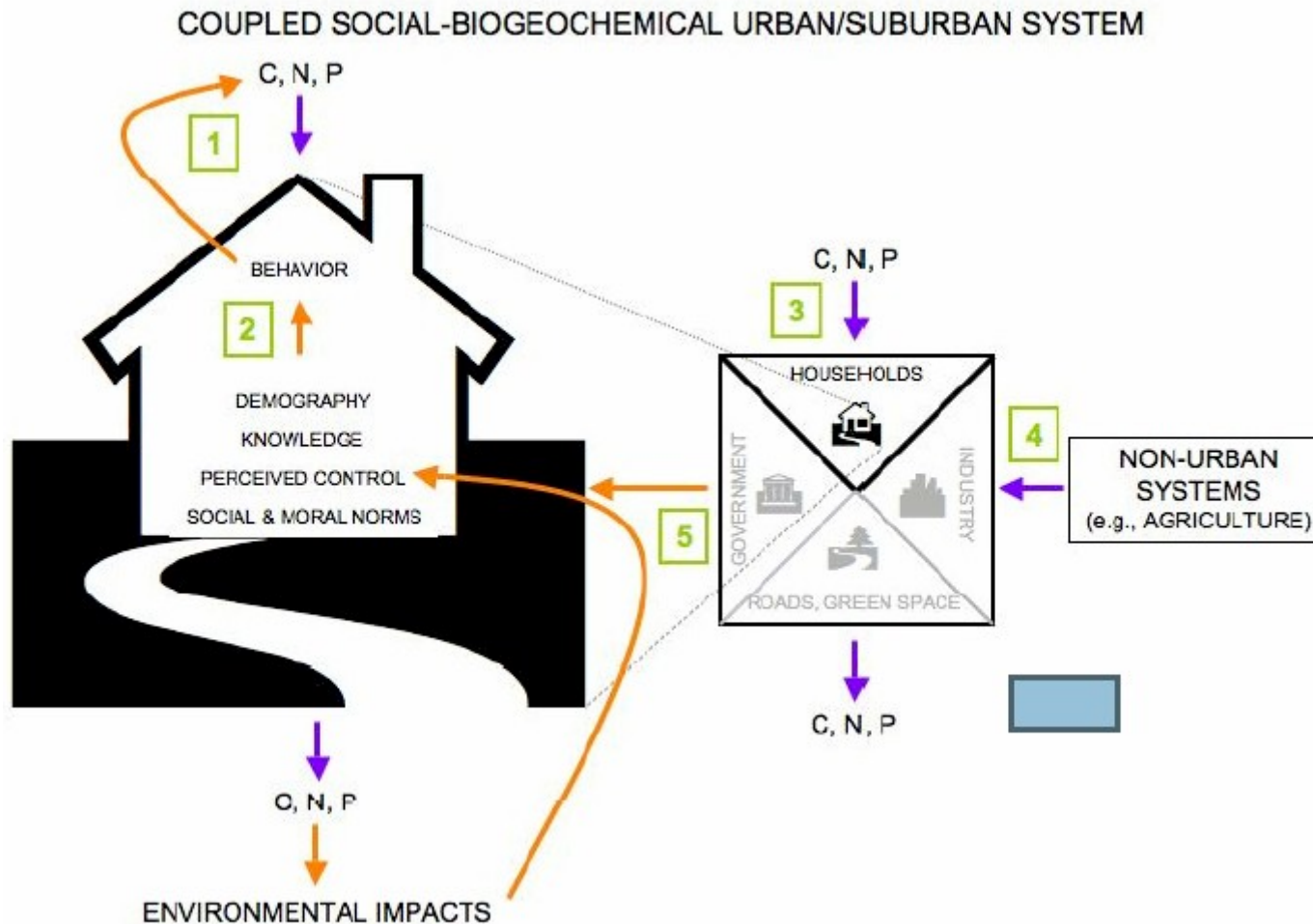




- Colin Polsky, Clark U, "Suburbanization, Water Use, Nitrogen Cycling, and Eutrophication in the 21st Century: Interactions, Feedbacks, and Uncertainties in a Massachusetts Coastal Zone"



- Lawrence Baker, U of Minnesota-Twin Cities, "Integration of Human Choice into Models of Biogeochemical Cycling in Urban Ecosystems"



# Decision Making Under Uncertainty for Climate Change

- Three centers
  - Arizona State (DCDC)
  - Columbia (CRED)
  - Carnegie Mellon
- Two smaller teams
  - Colorado
  - RAND

# How You Can Influence NSF Research

- Encourage scholars to apply
- Do an MOU
  - Warnings (NOAA, DRMS, IMHR)
  - Trans-Atlantic Uncertainty Colloquium (EPA, DRMS)

# Future?

- Resilience laboratories (with USGS, NOAA)
- Ecosystem services
- Cognitive neuroscience

